Inventory and Assessment of K-12 and Professional Teacher Development Programs in the National Estuarine Research Reserve System

K-12 and Professional Teacher Development Inventory

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NERRS K-12 EDUCATION PROGRAM INVENTORY MATRIX

Program name	Program description	Grade Level	# of participants per year	Program Format
Apalachicola NERR, Florida				
Treasure Chests	Treasure chests are boxes of artifacts, publications, models and lesson plans on various subjects.	K-8th	100	Hands-on activities, classroom lessons and materials
Classroom Curricula	Project Estuary is a middle school curriculum. Estuarine Habitats is an elementary school curriculum.	K-8th	unknown	Presentation, hands-on activities, classroom lessons
Field Programs	Interpretive and hands-on activities at various field locations in Reserve	K-12th	2,500	Guided walk, workshop
Coastal Management workshops	Periodic workshops for coastal managers	working professionals	100	Presentation, guided walk, Hands-on activities, field investigation/research
Chesapeake Bay NERR, Maryland				
Chem Craze	Four (4) day summer program targeted to 5th & 6th graders. Each day focuses upon a different science aspect with both a field and lab component. Guest experts are brought in and activities are as hands-on as possible.	4th-8th	150	Presentation, Guided walk, Hands-on activities, investigation/research
Otter Point Creek Environmental Survey	This is a class program dealing with a simulated scenario whereby the students take on the role of an environmental survey team to evaluate a local watershed development project. The students must gather data, evaluate results, and offer recommendations on the proposed development project.	6th-10th	120	Presentation, Guided walk, workshop, investigation/research

NERRS K-12 EDUCATION PROGRAM INVENTORY MATRIX

Program name	Program description	Grade Level	# of participants per year	Program Format
Teen Adventure	A summer program targeted at junior and senior high school students interested in pursuing a career in the environmental sciences. Environmental science professionals lead workshops that involve the students in actual work and expose the students to various careers.	11th-12th	30	Presentation, guided walk, hands-on activities, workshop, investigation/research
Chesapeake Bay NERR, Virgina				
Oyster Restoration Field Trips	Students who have been growing and monitoring oysters during the school year through Oyster Reef Keepers of Virginia will be taken on a 1-day field trip. The field trip will have a oyster theme and we will investigate a restored oyster reef (count spat and mature oysters, collect nekton, perform water quality measurements, etc.) prior to releasing the oysters grown by the students all year. CBNERRVA will be working in cooperation with Oyster Reef Keepers of Virginia on these programs.	4th-12th	250	Hands-on activities, investigation/research
Marine Science Field Trip	This 1-day field program option will appear in the spring of 2003. Participants will investigate a topic of choice (salt marsh, shallow water fish, groundwater) during a field trip designed to allow students to gather data for use back in the classroom. Time will be taken to collect replicate samples, record biological and physical data, ID specimens to species level and perform other duties often used during marine science fieldwork.	6th-12th	250	Hands-on activities, investigation/research
General Estuarine Field Trip	The General Estuarine Field Trip is for groups that do not have the background preparation or ability for the Marine Science Field Trip option. This 1-day field trip program will serve as an introduction to estuarine habitats and species. More topics will be addressed than the Marine Science Field trip, although in less detail.	4th-12th	400	Hands-on activities

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Program name	Program description	Grade Level	# of participants per year	Program Format
Multi-day Summer Program	Three 7-day long issue based programs will be conducted in the summer of 2003. Presentations, lectures, interviews, debate, field trips and hands-on field trips incorporating data gathering and interpretation will be used to investigate the many stakeholder positions and fishery science involved in managing blue crabs in the Chesapeake Bay.	9th-12th	55	Presentation, hands-on activities, investigation/research, stake holder interviews
Delaware NERR, Delaware				
Muckless Marsh Walk	Students are led on a hike over and around a salt marsh. Basic plants, animals, and functions are discussed. Program also gives a generic overview of the Reserve and the watershed.	K-12th	2000	Guided walk
Beach Ecology	Students conduct a dune hike, seine in the Delaware Bay, and beach comb.	K-12th	500	Presentation, guided walk, hands-on activities
Horseshoe Crabs and Shorebirds	Students are introduced to the complex biological interactions between these two species and how humans fit into the picture. Students see the animals on the beach and conduct mock research.	K-12th	2000	Presentation, hands-on activities, investigation/research
Watersheds	Students are given a presentation on what a watershed is. A demo is given about how pollution occurs in the watershed. Local watershed history is discussed.	K-12th	200	Presentation, hands-on activities
Water Quality	Students take an in-depth look at watersheds and how pollution that runs off into the St. Jones River can affect the health of the entire watershed. Students use LaMotte Kits to test water at the Reserve.	K-12th	1000	Presentation, hands-on activities, investigation/research
St. Jones River Boat Trip	Students are taken on a Carolina Skiff to look closely at salinity changes in the St. Jones River and how it affects plant and animal life. A history of the River is given, as well as functions and values.	K-12th	1000	Presentation, investigation/research, boat trip

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Program name	Program description	Grade Level	# of participants per year	Program Format
St. Jones Reserve Canoe trip	Students will travel by canoe as a means to look closely at the salinity changes in the St. Jones River.	6th-12th	60	Hands-on activities, canoe trip
History Hike	Students hike from the Reserve Center to Kingston Upon Hull, a national historic site adjacent to the Reserve. Along the way they are told about the historic uses of the estuary.	K-12th	100	Guided walk, self-guided walk
A Fishy Situation	Students dissect an estuarine fish to learn about basic fish biology and adaptations to living in the estuary.	K-12th	300	Presentation, hands-on activities
Insect Zoo	Students explore both land and water at the Reserve to find insects that use the estuary.	K-12th	300	Presentation, guided walk, hands-on acitivites, investigation/research
Elkhorn Slough NERR, California				
Elkhorn Slough Environmental Education Program: Field Experience	After completing a 1.5-day training so that they can be their own tour guides, teachers are able to schedule their classes for field trips and have access to 5 miles of hiking trails, a visitor center with interpretive exhibits, teaching lab with microscopes, picnic area, and a variety of kits for activities on the trails or in the classroom.	K-6th	10 000	Presentation, guided walk, hands-on activities, workshop, investigation/research
MERITO: Cielo al Mar (Sky to Sea); (Multicultural Education for Resource Issues Threatening Oceans)	As part of the Monterey Bay National Marine Sanctuary's multicultural education plan, we work closely with a bilingual education specialist who is developing and testing bilingual curriculum about Elkhorn Slough wetlands and watersheds. This is a pilot program currently being implemented at an after school program of a nearby middle school.	6th-8th	30	Guided walk, hands-on activities, investigation/research

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Program name	Program description	Grade Level	# of participants per year	Program Format
Camp SEA Lab Monterey Bay	Camp SEA Lab (Science, Education and Adventure) is a youth-oriented marine science education program offering week-long residential and day camp sessions for children ages 8-13. Students learn about coastal and ocean habitats through field experiences at ESNERR and participate in hands-on activities at several key marine research facilities in the Monterey Bay Area.	K-8th	250	Guided walk, hands-on activities, investigation/research
Nomadic Science Webcasts	Develop, deploy and test the technology necessary for wireless webcasts at ESNERR in collaboration with Henrik Kibak, a professor and science curriculum specialist at Calif. State University Monterey Bay. Work with teachers at selected school sites to develop accompanying curriculum.	4th-8th	60	Investigation/research, distance/on-line
Great Bay NERR, New Hampshire				
Spring/Fall Natural and Cultural Histories of Great Bay	These three hour programs are designed for a grade 1-5 audience, focusing on the natural and cultural history of Great Bay. Both staff and volunteer educators conduct the programs.	K-5th	3000+	Hands-on activities
Grand Bay NERR, Mississippi				
Celebrate the Gulf Marine Education Festival	This is an annual Marine Education Festival that we sponsor for all age groups but especially K-8. We have approximately 40 booths set up by local resource agencies that address coastal issues and students participate in a scavenger hunt of coastal facts at each of the booths. The schools that send the highest percentage of their students win a monetary award to buy science materials for their school.	K-12th	3000	Hands-on activities

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Program name	Program description	Grade Level	# of participants per year	Program Format
Estuary Gumbo	This program is based on Alex's Monsieur Detritus's Estuary Soup program only I usually present it at outdoor earth day or conservation day activities. I pose as Chef Emerald (based on Emeril Live) and make an estuary gumbo filled with Mississippi mud, detritus salt, etc.	K-8th	depends	Presentation, hands-on activities
Regional Science Fair	Our agency is co-sponsor of the regional science fair. In addition to the sponsorship we also award Excellence in Marine Science Awards to the students whose projects best address coastal issues especially those that offer solutions to coastal problems. I also partner with the Marine Ed Center to provide training to the teacher-sponsors of the science fair.	K-12th	1000	Hands-on activities
GTM NERR, Florida				
Ocean to Estuary Walk	learn about the variety of habitats found between the ocean and the estuary. The guided tour will take you from the beach, over the dunes, through scrub habitat, deep into the maritime hammock and out into the salt marsh.	6th-12th	500	Guided walk
Salt Marsh Exploration	Explore the most productive natural habitat on the planet. Discover the interconnectedness between the salt marsh plants and animals, measure elevation changes along a transect, and examine plant and animal abundance with regard to elevation.	6th-12th	100	Guided walk, self-guided walk, investigation/research
Fish Adaptations and Identification	Students will learn how different adaptations can tell us about how fish move and what they eat. This program may involve fish printing or seining depending on age and weather.	6th-12th	60	Hands-on activities, art class (fish prints)
Beach Exploration	Explore the living coast. Students will comb the beach for shells and other sea life. Afterwards we will examine and identify the items found on the beach followed by a slide show.	4th-12th	100	Guided walk

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Program name	Program description	Grade Level	# of participants per year	Program Format
True Crabs vs Pretender Crabs	Fiddler crab, blue crab and horseshoe crab ecology. Discussion about exotic crab research.	K-8th	60	Presentation
Jacques Cousteau NERR, New Jersey				
Shore Bowl	The Shore Bowl is one of 22 high school academic competitions around the country that serve as regional competitions for the National Ocean Sciences Bowl. Teams of 5 students each compete against one another to test their interdisciplinary knowledge of the ocean sciences.	9th-12th	100	Academic competition
Estuary Live	Live video streaming field trips to various estuaries around the country. Students and classes can register to view the broadcast over the Internet and submit questions to be asked live during the broadcasts.	4th-12th		Presentation, guided-walk, investigation/research, distance/on-line
North Inlet-Winyah NERR, South Carolina				
Estuary-Net	Estuary-Net is a high school water quality monitoring program first implemented by the NERRS several years ago; the program has lost funding, but was important to our educational programming and we have modified it somewhat and still use classroom, field/hands-on, and follow-up activities with several of our area high schools. We provide teachers w/curriculum and sampling equipment, visit classrooms for presentations on water quality issues, teach students to use test equipment in the lab and in the field and they select sample sites to monitor and then submit their findings to us at our Reserve.	9th-12th	Varies by semester, but roughly 350-400 per year	Presentation, investigation/research, distance/on-line

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Tidal Creek Catches	Half-day field trip to an intertidal salt marsh creek where participants use a variety of sampling devices (seines, plankton & dip nets, mud cores and sieves, water testing kits) to learn about the estuarine environment and its inhabitants. Usually runs late spring through late fall.	4th-8th, families, home school groups	60	Presentation, guided walk, hands-on activities, investigation/research
Fishes of North Inlet Estuary	This is a program open to all ages, currently used by home school groups and also the general public and Reserve volunteers, offered at least once each month. This program allows hands-on participation with Reserve scientists in the field and the lab. Participants help take the sample at the creek, sort and identify the catch by species, and help with the length and weight measurements of the catch. We also include a slide show of the local fish and shrimp species and summaries of data trends from this long-term research project.	4th-12th, general public	75-100	Presentation, guided walk, hands-on activities, investigation/research
Old Woman Creek NERR, Ohio				
Birds with 2 Homes	To increase student awareness of the neotropical bird species shared between Northern Ohio and the Crooked Tree Wildlife Refuge Sanctuary in Belize Central America	K-8th	1500	Presentation, hands-on activities, investigation/research
Estuarine Ecology	A general introduction to estuaries, their functions as wetlands and their use. Information is based on the age (grade) of the learner, each program is tailored to the needs of the teacher.	K-12th	1000-1500	Presentation, hands-on activities, investigation/research
Jobos Bay NERR, Puerto Rico				
Exploring Estuarine Ecosystems at Jobos Bay	Students come to the Visitor Center and they are introduced to Jobos Bay and its estuarine and marine ecosystems through a talk with slides and a video film. They have an opportunity to visit the exhibits then they go on a guided walk through one of our trials.	6th-12th	2 000	Presentation, guided walk

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Program name	Program description	Grade Level	# of participants per year	Program Format
Narragansett Bay NERR, Rhode Island				
Narragansett Bay Basics	This program introduces students to Narragansett Bay and its importance as an estuary by taking a close look at some of the bay's inhabitants. A dry touch tank and traveling aquarium may accompany this program.	K-10th	200	Presentation, hands-on activities
Sharks of Narragansett Bay	Discover the truth about these not-so-cold-blooded-killers and learn which species can be found in Rhode Island's waters.	3rd-8th	100	Presentation, hands-on activities
Horseshoe Crab Hour	Did you know the horseshoe crab was named after a giant one-eyed monster from Greek Mythology? You will learn all about the horseshoe crab's history, biology, and their importance to humans and other animals. Current monitoring techniques used in Rhode Island will also be discussed.	4th-10th	100	Presentation, hands-on activities, investigation/research
House for Hermit Crab	This Eric Carle book is used to introduce children to Narragansett Bay and its inhabitants. The traveling aquarium and dry touch tank may accompany this program.	Pre-K through 1st	100	Presentation, hands-on activities
Great Sharky Shark	In this book, Suzanne Tate describes the life of this apex predator who himself becomes one of the hunted when he is caught in trash left by humans. Children will learn why it is important to keep our oceans and estuaries clean.	Pre-K through 1st	100	Presentation, hands-on activities
Crab Moon	This Ruth Horowitz story relays the message that each of us must do our share to protect our ancient mariner, the horseshoe crab. Following the story, children will make horseshoe crab picture frames to take home.	Pre-K through 1st	50	Presentation, hands-on activities

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Program name	Program description	Grade Level	# of participants per year	Program Format
North Carolina NERR, North Carolina				
Field trips for specific grade level	Reserve staff direct students in the estuary for a 2 hour interpretive, hands on learning experience based on grade level objectives and teacher requested needs.	K-12th, pre-service and college level	3000	Presentation, guided walk, hands-on activities, investigation/research
EstuaryLive	EstuaryLive is an online, interactive internet field exploration of an estuarine site.	K-12th, college	5000	Presentation, guided walk, distance/on-line
Outreach	Programs on coastal/estuarine topics designed for target audience	K-12th, college	500	Presentation, hands-on activities
Padilla Bay NERR, Washington				
K-12	Teachers call us to request an on-site field trip lasting from 1.5 to 5 hours. These field trips include indoor and field experiences.	K-12th	8,000	Presentation, hands-on activities, investigation/research
Rookery Bay NERR, Florida				
On-the-Water Marine Science Programs	Designed primarily for high school students. Includes 30 minute classroom presentation followed by a boat trip that includes a variety of experiential learning activities related to estuarine ecology and marine science. Activities vary depending on teacher's preferences, tides, time of year, etc.	9th-12th, college	1500	Presentation, hands-on activities, boat trip
Sapelo Island NERR, Georgia				
Sapelo Island History	Visitors are introduced to the rich natural and cultural history of Sapelo Island, including elements of local maritime industry, the Gullah-Geechee community of Hog Hammock, as well as the agriculture and timber activities of the 1800s. Instructors may also wish to include local Native American history and/or to highlight the influence of Spanish and French settlers on the island during the 1500-1700s.	5th-12th	1100-1200	Presentation, guided walk

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Program name	Program description	Grade Level	# of participants per year	Program Format
Coastal/Barrier Island Ecology (both Marsh and Beach systems)	Programs feature typical barrier island ecosystems including estuarine, maritime forest and beach habitats. Field and lab activities (seining, vegetation studies, plankton collection, etc.) highlight the marsh and ocean systems of Sapelo Island.	4th-12th	900-1000	Guided walk, hands-on activities, investigation/research
South Slough NERR, Oregon				
Estuary Study Program - In Search of the Treasures of South Slough	Students embark on a search to discover the riches of the estuary through exploring four different stations based on four habitat zones. Night Prowlers, World Travelers, Estuary Soup, and Estuary Garden stations are focused on upland, salt marsh, mudflat, and open water channel habitats.	4th-5th	1,000	Guided walk, hands-on activities, investigation/research
Estuary Study Program - Secret of the Lost Medallion	Students seek the story of a medallion that describes the physical, biological, and chemical processes that make up the estuary. They seek truths through investigation at 7 stations located along the shoreline.	4th-8th	1,000	Guided walk, hands-on activities, investigation/research
Estuary Study Program - An Ecosystem and a Resource	This program is a collection of laboratory and field based activities that has been developed for high school students.	9th-12th	<150	Guided walk, investigation/research, self-directed classroom
Estuary Study Program - The Lore of South Slough	Students investigate the history and nature of South Slough through investigative reporting and interviews with several characters including a scientist, Native American, transporter, settler, and logger.	6th-8th	0	Guided walk, investigation/research
The International Brant Monitoring Project	Students conduct field surveys and take part in classroom activities to understand the biology and ecology of brant geese, their habitat and migrations. The students communicate data with students in other countries along the flyway via the internet.	4th-12th	120	Hands-on activities, investigation/research, distance/on-line

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Program name	Program description	Grade Level	# of participants per year	Program Format
Estuary Live	We have participated in this internet based program for the past two years. Through a live webcast (pre-recorded in year one) classrooms throughout Oregon and the country are able to learn about the South Slough NERR and research activities being conduced at the site.	4th-10th	difficult to estimate (~500???)	Guided walk, hands-on activities, distance/on-line
Signs of Life - Boys and Girls Club	Monthly offering of classroom based activities at the local Boys and Girls Club. Students participate in hands-on investigations of estuary life.	4th-5th	~90	Presentation, hands-on activities
Tsalila Festival	This three day festival features the story of the salmon as an important focus for the area. Students from local schools participate in the first day of the festival as a part of school and then return with families over the weekend. South Slough features hands-on exhibits and guided activities.	K-5th	~300	Presentation, hands-on activities
Apprenticeships in Science and Engineering	2-3 High School freshman, sophomores, or juniors are competitively selected to participate in an 8-week mentorship working with Reserve staff on science based projects. Students are required to present a poster and oral discussion of their work.	9th-10th	2-3 locally 200 statewide	Presentation, hands-on activities, self-guided walk, investigation/research, informational poster development
Tijuana River NERR, California				
Tijuana Estuary Explorers	Tijuana Estuary Explorers is an in-class and field trip program, targeted at 3rd - 5th grade, that meets state standards and incorporates reading, writing and science into four comprehensive activities (what is watershed?, birds, marsh plants and plankton) about the Tijuana Estuary and its watershed.	3rd-5th	200	Guided walk, hands-on activities, investigation/research
Jr. Rangers	Jr. Rangers is an after school program for kids ages 7-12 that explores estuarine ecology, natural and cultural history, plants and wildlife. It is a statewide program for California State Parks.	3rd-7th	520	Presentation, guided walk, hands-on activities

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Program name	Program description	Grade Level	# of participants per year	Program Format
Waquoit Bay NERR, Massachusettes				
Grade 5 Watershed Walks	Students trace the path of a rain drop flowing through the watershed that includes their school. They make stops and keep a journal with water quality measurements and observations to notice the differences as they pass from fresh to salt water environments. Teachers who participate must take a training workshop on groundwater concepts.	4th 5th	120	Guided walk, investigation/research
Grade 3 Estuary Program	Citizens for the Protection of Waquoit Bay, the friends group that supports many of the educational activities of Waquoit Bay Research Reserve, has sponsored presentations about estuaries in grade 3 classes for 5 years. The presentations, which last 30-40 minutes according to the class time available, are made by a certified teacher with expertise in estuaries and coastal ecosystems and include live estuary animals. In the programs, nearby estuaries and local organisms are highlighted. Connections are made in the presentation between the estuary concepts and the grade 3 curriculum. The estuaries program includes a poster contest, in which the third graders are invited to create colorful pictures on a theme connected with estuaries. This year's theme is "Together We Can Make a Difference". The poster component is done in cooperation with school art teachers. All participating students and their parents are invited to a free gala art opening and reception at the Reserve to view all the student's posters on display. The third component of the estuaries program is a field trip to study and observe a local estuary. The field trip is optional and is scheduled at the most appropriate date and time for the class, often in mid to late May or early June. Parents are invited to accompany the field trip.	K-3rd	350	Presentation, guided walk, hands-on activities, investigation/research

NERRS K-12 EDUCATION PROGRAM INVENTORY MATRIX

Program name	Program description	Grade Level	# of participants per year	Program Format
The Bay Team	The Bay Team is an after-school science club for low income or underprivileged students in grades 4-6 who live in the neighborhood of Waquoit Bay National Estuarine Research Reserve. Bay Team members learn about the water in the bay estuarine habitats, winds and tides, and the creatures that live along the shore and in the water.	4th-8th	15	Presentation, guided walk, hands-on activities, investigation/research, Classroom lessons
Grade 6 Estuary Program	All grade 6 students in Falmouth come to the Reserve 2 classes at a time for a day of estuary lessons.	6th-8th	375 students and 20 teachers	Presentation, guided walk, hands-on activities, investigation/research, classroom lessons
Grade 8 Pond Study	All grade 8 students in Falmouth participate in sampling two ponds on school property. Each class samples 3 times per year. Data are collected and analyzed. Students discuss and communicate results about water quality in the ponds.	6th-8th	400	Presentation, guided walk, hands-on activities, investigation/research, classroom lessons, and data analysis
Junior Ranger Program	The Massachusetts Department of Environmental Management encourages the Junior Ranger program at the State Parks staffed with Interpretive Naturalists. It takes different forms in different parks. At WBNERR, we sponsor a series of one hour programs once a week for 6-12 year olds (with an accompanying adult) on various topics the Reserve is studying.	K-5th	50	Presentation, hands-on activities, investigation/research
Waquoit Bay Science School	This is a week-long hands-on day program which includes estuary explorations, modeling, experiments and aquarium observations on estuary and groundwater topics. There are two special sections for boys and girls (grades 6-8) which include an overnight camp out on Washburn Island.	K-8th	84	Hands-on activities, investigation/research

NERRS K-12 EDUCATION PROGRAM INVENTORY MATRIX

Program name	Program description	Grade Level	# of participants per year	Program Format
Summer Estuary Exploration programs	Various groups (usually from camps, sailing clubs, etc) can request a hands-on program at the Reserve which usually consists of groundwater modeling activities and field explorations down at the estuary. They are catered to individual group's needs.	K-12th	350	Presentation, guided walk, hands-on activities, investigation/research
High School Classes	Programs for high school students are presented at the school, at the Reserve, or at a field study site. These programs include readings for students, presentations about research, field sampling and a follow-up project in which students prepare reports, posters, or a public display about the topics they studied.	9th-12th	275	Presentation, hands-on activities, workshop, investigation/research, distance/on-line, scientist presentations in connection with study topic, student projects
Programs for Middle School Students	Programs are presented at the Reserve for classes of students in grades 5-8. In these classes, students are introduced to estuaries, their ecology, and human impacts on them, and students sample water and biology in Waquoit Bay.	4th-8th	200	Presentations, hands-on activities, investigation/research
Weeks Bay NERR, Alabama				
K-12 Environmental Education Program	This program is the curriculum (compilation of hands-on activities) that we use with the K-12 students who come to the Reserve for fieldtrips. The activity objectives are correlated to the Alabama Course of Study in Science for all grade levels. The activities for K-8 are grade level specific for theme and objectives. Activities for high school students are field oriented and focus primarily on water quality and how it affects diversity.	K-12th	3,500-4,000 students and approximately 400 teachers and chaperones	Guided walk, hands-on activities, investigation/research, distance/on-line

NERRS K-12 EDUCATION PROGRAM INVENTORY MATRIX

Program name	Program description	Grade Level	# of participants per year	Program Format
Teacher Theme Boxes	Theme boxes are resource boxes which teachers may check-out for a period of two weeks to use in their classroom. The boxes are designed for a range of grade levels primarily K-4 but a couple are 5-8. Themes include reptiles and amphibians, insects and spiders, birds and mammals, sea life, marine mammals, bats and wetlands. The boxes include puppets, books, posters, video and cassette tapes and water quality test kits for the older students.	K-8th	10 different boxes	Resource boxes that are loaned out to teachers.
Wells NERR, Maine				
Vital Signs	Uses palm pilots and probes to test water quality and monitor salt marsh restoration sites.	6th-12th	New program	Guided walks, hands-on activities, investigation/research
Exploring Estuaries	Students come to our site and go through several stations teaching them about the importance of estuaries and their connections to surrounding habitats	K-5th	1000	Guided walk, hands-on activities
Water Quality Monitoring Field Studies	Students collect water samples from three different spots in the estuary and analyze the samples in our teaching lab	6th-12th	300	Presentations, guided walk, hands-on activities, investigation/research
Watershed Evaluation Team	Students monitor water quality at 22 different sites throughout two estuaries on Reserve property	6th-12th	50	Presentation, guided walk, hands-on activities, self-guided walk, investigation/research
Microscopic Drifters	Students learn about plankton, and collect and analyze plankton samples during a half day program	6th-12th	New program	Presentation, hands-on activities
Discovery Program	10 different booklets designed for 2 different age levels that lead small groups along trails of the Reserve. Equipment for the activities is included in a backpack they borrow.	K-5th	300	Hands-on activities, self-guided walk

NERRS K-12 EDUCATION PROGRAM INVENTORY MATRIX

Program name	Program description	Grade Level	# of participants per year	Program Format
Self Guided Field Trips	Teachers bring their classes and, using Reserve background information, curriculum, and equipment, explore a topic that fits within their curriculum	K-12th	1500	Hands-on activities, self-guided walk, investigation/research
Kachemak Bay NERR, Alaska				
Estuarine Ecology Research	During this field trip investigation, students learn about functional values of estuaries, especially coastal marshes, past and present KBNERR research projects and new ecological information on the local estuaries.	4th-8th	500	Presentation, guided walk, hands-on activities, investigation/research

NERRS PROFESSIONAL TEACHER DEVELOPMENT INVENTORY

Program name	Program description	Which teacher grade level is this training for?	Approximately how many participants attend this program per year	Program Format
Ace Basin NERR, South Carolina				
ECO (Educate Colleton Outdoors)-Project	The ECO (Educate Colleton Outdoors)-Project works to provide hands-on learning opportunities for the middle and high school teachers of Colleton County, SC. Through field trips, workshops, and conferences, the ECO-Project strives to educate and encourage the teaching of environmental science within the classroom especially focusing on the ACE Basin.	6th-12th	25-30	Presentation, guided walk, hands-on activities, workshop, investigation/research, conferences
Apalachicola NERR, Florida				
Teacher Training	Periodic workshops for teachers related to local topics or Reserve curricula.	K-12th	20	Workshop
Chesapeake NERR, Maryland				
Physics & Chemistry in Environmental Science	This is a workshop that was developed for education conferences and other related gatherings of formal and informal educators. The purpose is to reveal aspects of physics and chemistry that can be related in a fun and easy manner to environmental science.	6th-12th & Informal Educators	100	Presentation, hands-on activities, workshop

NERRS PROFESSIONAL TEACHER DEVELOPMENT INVENTORY

Program name	Program description	Which teacher grade level is this training for?	Approximately how many participants attend this program per year	Program Format
Chesapeake NERR, Virgina				
Restoration on the York River	These 3-day teacher trips are designed to give teachers a working understanding of important local estuarine habitats by using restoration of those habitats as a theme. Presentations by restoration experts and hands-on field trips will be used during the program.	K-12th	60	Presentation, hands-on activities
Estuarine Aquarium Keeping	This 1 (or two)- day teacher training will instruct teachers how to maintain estuarine aquaria in their classroom. Specimen collection identification life history and transportation will be covered in the field. Demonstration tanks will be created during the program.	K-12th	20	Presentation, hands-on activities
Delaware NERR, Delaware				
Introduction to the DNERR	Teachers come to an all day workshop to learn how the DNERR can add to their classroom learning.	K-12th	50	Presentation, guided walk, hands-on activities, workshop, investigation/research
Introduction to the Estuary	Teachers learn basic estuarine ecology and are given an introduction to the St. Jones Watershed.	K-12th	30	Presentation, guided walk, hands-on activities, workshop, investigation/research

NERRS PROFESSIONAL TEACHER DEVELOPMENT INVENTORY

Program name	Program description	Which teacher grade level is this training for?	Approximately how many participants attend this program per year	Program Format
Green Eggs and Sand	Green Eggs and Sand (GES) is a weekend workshop that teaches teachers how to use the GES curriculum and gives them background information on the science and management of horseshoe crabs and shorebirds.	6th -12th	100	Presentation, hands-on activities, workshop, investigation/research
Elkhorn Slough NERR, California				
Elkhorn Slough Environmental Education Program: Teacher Training	This is a 1.5-day teacher workshop designed to provide educators with the information and tools needed to lead an informative and enjoyable field experience for their students. They receive a curriculum packet, review the interpretive exhibits in our visitor center and spend most of the time in the field getting hands-on experience with the various curriculum activities designed for the trails or classroom. From the pallet of choices presented, the teachers choreograph their own program appropriate for the age of their students, emphasizing the themes and topics being covered in the classroom.	K-8th	60-80	Presentation, guided walk, hands-on activities, workshop, investigation/research
Great Bay NERR, New Hampshire				
It's All Connected Curriculum Teacher Training	Great Bay curriculum for teachers		20	Workshop

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Program name	Program description	Which teacher grade level is this training for?	Approximately how many participants attend this program per year	Program Format
GTM NERR, Florida				
Bringing Estuaries Into the Classroom	Teachers learn hands-on classroom activities that can be used to demonstrate concepts relating to estuarine ecology. Most activities use easily obtained, inexpensive materials. Teachers receive copies of all the instructions and other printed materials to take home.	6th-8th	30	Presentation, guided walk, hands-on activities, workshop
Collectors Permit Workshop	Teaches proper collection, transportation of animals and rules and regulations for collecting marine species along with alternatives to collecting live specimens. Provides teacher with State of FL collecting permit.	K-12th	20	Presentation, hands-on activities
How to do Field Studies with your Students	Currently putting a program together that will teach how to use scientific equipment out in the field, includes data collection and fieldtrip safety.	6th-8th	15	Presentation, investigation/research
Hudson River NERR, New York				
Collaboration with Clearwater's Hudson River Teacher Training Program	The Hudson River Sloop Clearwater offers a week-long training program for teachers during the summer. Teachers are exposed to the natural, historical and cultural, and industrial histories of the Hudson River. Hudson River NERR provides the field-based portion of the training, via interpreted canoe trips to a reserve site: Tivoli Bays.	K-12th	15-20	Presentation, guided walk, hands-on activities, guided canoe trips

NERRS PROFESSIONAL TEACHER DEVELOPMENT INVENTORY

Program name	Program description	Which teacher grade level is this training for?	Approximately how many participants attend this program per year	Program Format
Collaboration with Hudson River Ecology Course	The Hudson River Ecology Course is a week-long teacher training program which focuses on the natural, physical, historical and industrial history of the Hudson River. The Reserve provides the field-based portion of the training: a guided canoe trip the Iona Island Reserve site.	K-12th	15-20	Presentation, guided walk, hands-on activities, guided canoe trips
NYS DEC Hudson River Teacher Training Program	The NYS DEC based at StonyKill Farm offer a week-long program for teachers, introducing them to the natural, physical, historical and cultural aspects of the Hudson River Estuary. The Reserve provides the field-based portion of the training, with a guided canoe trip to a Reserve site.	K-12th	10-15	Presentation, guided walk, hands-on activities, guided canoe trips
Hudson River Educators' Series	The series consists of day-long programs offered twice a year which focus on specific aspects of the Hudson River Estuary. The day offers a combination of presentations, workshop activities and (where appropriate) field programs.	K-12th & Informal Educators	150	Presentation, guided walk, hands-on activities, guided canoe trips

NERRS PROFESSIONAL TEACHER DEVELOPMENT INVENTORY

Program name	Program description	Which teacher grade level is this training for?	Approximately how many participants attend this program per year	Program Format
Jacques Cousteau NERR, New Jersey				
Marine Activities Resources and Education (MARE)	Marine Activities Resources & Education (MARE) is an interdisciplinary K-8 whole school change program that engages teachers, students, parents, administrators, and the community to transform elementary and middle schools into dynamic laboratories for the study of the ocean. MARE is a supplemental curriculum, designed to enrich science instruction for all students while promoting equity, language acquisition and academic excellence among English language learners. The MARE curriculum focuses each grade level on a different ocean habitat. Individual teachers at MARE schools use the thematic curriculum at their own pace throughout the year as a vehicle to coordinate and integrate their science instruction. At each grade level, the MARE habitat curriculum provides a minimum of 10 weeks worth of inquiry-based hands-on activities, covering an integrated treatment of earth & physical science, biology, environmental issues, mathematics, language arts/literature, social studies, art, music and drama.	K-8th	35-40	Presentation, hands-on activities, workshop, investigation/research

NERRS PROFESSIONAL TEACHER DEVELOPMENT INVENTORY

Program name	Program description	Which teacher grade level is this training for?	Approximately how many participants attend this program per year	Program Format
COSEE Coastal Observatories Workshop	This workshop is designed to provide middle and high school educators with an appreciation and understanding of a variety of coastal habitats, scientific research being conducted in these habitats, and a particular emphasis on the importance, research, and data associated with coastal ocean observatories. This program is a collaborative effort between the partners of the Mid-Atlantic Center for Ocean Science Education Excellence (MA-COSEE) - MA-COSEE partners include Rutgers Marine and Coastal Sciences, the Jacques Cousteau NERR, Stevens Institute of Technology, University of Maryland, Virginia Institute of Marine Sciences, NY Aquarium and Hampton University.	6th-12th	12	Presentation, hands-on activities, workshop, investigation/research
MARE Summer Institute	The Marine Activities Resources and Education (MARE) program conducts a professional development institute each summer for ~40 educators. MARE is an interdisciplinary, whole-school program that teaches basic concepts and principles across a variety of subjects using marine science content as a learning vehicle.	K-8th	35-40	Presentation, guided walk, hands-on activities, workshop

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Program name	Program description	Which teacher grade level is this training for?	Approximately how many participants attend this program per year	Program Format
Advanced MARE workshops	A series of workshop conducted over 4-5 days that serve to provide educators with advanced training in the science, content, and curricula associated with the Marine Activities Resources and Education (MARE) program. These workshops go into greater depth and detail than the MARE Summer Institute.	K-8th	20-25	Presentation, guided walk, hands-on activities, workshop
Coastal Observatories Workshop	A workshop designed to familiarize middle and high school educators with the technology, research and data associated with coastal ocean observatories and the surrounding coastal habitats	6th-12th	12-20	Presentation, guided walk, hands-on activities, workshop, investigation/research, distance/online
Administrators Workshop	A one-day annual workshop to inform administrators from around the state about the education programs we offer and how they can get their staff/schools involved in incorporating the ocean sciences into the classroom	K-8 Administrators	20	Presentation, guided walk, hands-on activities, workshop
Middle School Ocean Science Workshop	A multi-day workshop to introduce middle school educators to various pedagolical techniques and curricula to bring ocean sciences into the classroom as an interdisciplinary learning tool	6th-8th	15	Presentation, guided walk, hands-on activities, workshop

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Program name	Program description	Which teacher grade level is this training for?	Approximately how many participants attend this program per year	Program Format
C.O.O.L. Classroom Workshop	A workshop to provide professional development for educators in using the C.O.O.L. Classroom with their students. The C.O.O.L. Classroom is a series of Internet-based lessons that are focused on the research, technology and data (real-time) of the Rutgers Long-term Ecosystem Observatory in the coastal Atlantic Ocean.	6th-12th	20	Presentation, guided walk, hands-on activities, workshop, distance/online
Kachemak Bay NERR, Alaska				
Current Issues in Science Education: Coastal Climate Change and the Intertidal Environment	Intertidal Environment. A 2.5-day classroom and field oriented course designed to enable teachers and their students to become involved in real life science by making observations and collecting data that can be used by local scientists studying change in Kachemak Bay and global scientists studying climate change around the world. Students learned how to set-up a coastal monitoring program in their school (following new GLOBE protocols. Strategies for teaching environmental science were explored through field activities conducted in sandy, muddy, and rocky intertidal environments.	4th-12th	15-25	Presentation, hands-on activities, Workshop, investigation/research, hands-on computer

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Program name	Program description	Which teacher grade level is this training for?	Approximately how many participants attend this program per year	Program Format
Current Issues in Science Education: Physical Oceanography research and its techniques	This three-day course presents lab demonstrations and strategies for teaching science concepts and process skills based on current research studies and findings about the local and regional environment. This unit will focus on oceanography research and its techniques.	6th-12th	15-20	Hands-on activities, investigation/research
Current Issues in Science Education: Focus on Watershed and Aquatic Science	This 3 day course will introduce students to basic watershed and aquatic science concepts of stream dynamics, water quality, and stream and wetland habitats; develop your confidence in teaching environmental science using current environmental scientific research and research techniques in the local or regional environment; present field demonstrations of these concepts and a classroom unit for rearing salmon in the classroom; demonstrate stream monitoring and sampling techniques for fish, aquatic insects, and water quality; and survey recent watershed research studies and techniques for fish and resource management issues in the Kachemak Bay Watershed.	4th-12th	15-25	Hands-on activities, investigation/research

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Program name	Program description	Which teacher grade level is this training for?	Approximately how many participants attend this program per year	Program Format
North Carolina NERR, North Carolina				
Coastal Explorations	A Coastal Exploration provides some general activities for use in the classroom as well as some basic information about Estuaries and their importance. Teachers and educators learn about North Carolina's 2 million acres of estuaries and their importance in our seafood industry; general ecological concepts; and impacts on estuaries.	4th-12th & Pre-service teachers	75	Presentation, guided walk, hands-on activities, workshop
EstuaryLive	How to use EstuaryLive and integrate into curriculum	K-12th & college and technology coordinators	20	Guided walk, hands-on activities, workshop, investigation/research, online
Coastlive	Topical online interactive seminars with scientists and educators	6th-12th & pre-service teachers	15	Presentation, workshop, distance/online
Old Woman Creek NERR, Ohio				
L.A.K.E.R.S	Lake Aware Kids Engaged in Relevant Science. (LAKERS) is a workshop for teachers about Lake Erie and the Great Lakes Ecosystems.	6th-12th	50	Presentation, hands-on activities, workshop, investigation/research
Project WET	Project WET is a national nonprofit water education program for teachers, grade K-12. The goal of Project WET is to facilitate and promote awareness, appreciation, knowledge, and stewardship of water resources.	K-12th	100	Presentation, hands-on activities, workshop

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Program name	Program description	Which teacher grade level is this training for?	Approximately how many participants attend this program per year	Program Format
Padilla Bay NERR, Washington				
Clockhours	Padilla Bay offers credit for professional teacher continuing certification. These credits can be offered at approved classes, conferences, workshops etc.	K-12th	100	Presentation, guided walk, workshop, investigation/research
Sapelo Island NERR, Georgia				
Coastal/Barrier Island Ecology	One, two, and three-day programs can be arranged for groups of 10-30 teachers. Instruction and materials highlight the ecology and wildlife of barrier island systems (estuarine, upland and beach habitats) as well as the history of Sapelo Island.	4th-8th	120-150	Presentation, guided walk, hands-on activities, workshop, investigation/research
South Slough NERR, Oregon				
Marine Activities and Resource Education (MARE)	MARE has been adopted by the local Coos Bay School District as their science curriculum. We have been working with a partnership to promote development of a teacher training institute for MARE while conducting training for MARE teachers.	K-8th	20-30	Presentation, guided walk, hands-on activities, investigation/research
Estuary Study Program	Teachers participate with parent volunteers in 4-6 hours of training on-site to gain background knowledge in estuary ecology and the delivery of site based curricula.	4th-12th	80-100	Presentation, guided walk, hands-on activities

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Program name	Program description	Which teacher grade level is this training for?	Approximately how many participants attend this program per year	Program Format
Waquoit Bay NERR, Massachussetts				
Teacher Training	Staff at the Waquoit Bay Reserve present teacher training programs as individual presentations and in series. 10 Professional Development Points are available for each workshop. Topics include groundwater, watersheds, estuaries, coastal dynamics and geology, renewable energy, climate change, weather, water quality monitoring, field trip techniques, and data analysis.	4th-12th & Vocational-technical teachers; informal educators	80	Guided walk, hands-on activities, workshop, investigation/research, online
Project WET	Project WET (Water Education for Teachers) is a national program to train teachers to use a curriculum and activity guide to promote awareness, appreciation, knowledge, and stewardship of water resources. We conduct teacher trainings and provide support for WET festivals at schools.	K-12th & Informal Educators	15	Hands-on activities, workshop, curriculum
Museum Institute for Teaching Science (MITS)	Museum Institute for Teaching Science is a state-wide consortium of informal science education museums. They sponsor 2-week long institutes across the state during the first two weeks of July. Last year our portion of the institute focused on renewable energy. This year we will be focusing on sustainable schools.	4th-8th	20	Hands-on activities, workshop, investigation/research

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Program name	Program description	Which teacher grade level is this training for?	Approximately how many participants attend this program per year	Program Format
Presentations at Professional Conferences	Teacher training presentations are made at professional teacher conferences. These presentations serve to reach regional and national audiences of teachers with estuarine and coastal science topics.	4th-12th	80	Presentation, hands-on activities, workshop, distance/online
Weeks Bay, Alabama				
Non-point Source Pollution and Watersheds for Educators	This is a two and a half day workshop for educators both formal and informal about non-point sources of pollution in watersheds. The workshop has been conducted for six years and draws participants from the entire state.	6th-12th & General Public	25	Workshop
Wells NERR, Maine				
Project WET	Teacher training workshop about water resources	K-12th	50	Presentation, guided walk, hands-on activities, workshop
Project Wild	A teacher workshop on wildlife, the environment, and conservation	K-12th	40	Workshop
Project Learning Tree	A teacher workshop about environmental education and fostering stewardship.	K-12th	20	Workshop